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Can an examination of student motivations for studying dentistry inform us about gender and BME differences in academic dental careers?

Running Title: The pursuit of careers in dentistry

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Abstract

There are various motivators that prompt people to study dentistry but there is evidence that the salience of each varies according to gender and BME group. Given the current focus on inequality within the STEMM academic disciplines where dentistry sits it is important to understand the relevance of different motivators to different social groups if inequality is to be overcome. We carried out a survey of dental students from 11/18 schools in the UK to find out what prompted them to study dentistry. Our findings showed that most people make a personal choice to study dentistry and follow a patient-focussed career while the prospect of an academic career was important for fewer than half of our sample. Differences according to gender and BME group were apparent but did not follow these trends. In order to continue to improve the diversity within dental academia dental schools should consider the different preferences of the workforce and work to broaden its potential.

The demographic characteristics of registered dentists in the United Kingdom

Dentistry is a popular career choice among young people planning to go to university. Reasons given to explain this popularity include opportunities for professional and social status, flexible working hours, job security and financial rewards.[1-8] There is also the appeal of a vocation – being a dentist provides an opportunity to 'help people' and provide patient care.[7, 8] While these characteristics are known motivators for studying dentistry, there is evidence that their salience varies according to demographic factors such as gender and ethnic group.[8] This is important given the current focus on the many (in)equality issues reported within the science, technology, engineering, medicine and mathematics (STEMM) academic disciplines wherein dentistry sits.

While there is an historical legacy in which more men than women have trained as dentists, research from around the world suggests that this trend has been changing since the 1990s with increasing proportions of women studying dentistry.[9-13] In 2012, 44.5% of registered dentists were female with a slight increase to 45.4% by 2013[14 15]; gender balance varies according to specialty and discipline.[16, 17, 18] A recent head count survey reported that women are over-represented in dental public health (58.3%), paediatric dentistry (63.3%) and special care dentistry (90%) whereas a greater proportion of men have careers in oral and maxillofacial surgery (75%), orthodontics (68.9%), periodontics (62.3%) and restorative dentistry (67.7%).[16] In academia, there is evidence of both vertical and horizontal gender and ethic differences in the workforce: in 2012 39% of clinical academic dentists were female [16]: 44% at lecturer level but only 16% with professorships.[17] Similarly, in 2014 22% of clinical academic dentists were of BME origin but only 8% were professors.[17]

Regarding academic dentistry, the gender bias is reported to result from a "leaky pipeline"[18, 19] where the proportion of women in more senior academic posts rarely replicates the increasing proportion of female undergraduate and post-graduate students (see below). In part, this is likely to be due to the fact that, as noted, more men have trained as dentists historically and so there will be more men in the profession with more associated experience. However, the proportion of women entering training has been increasing for at least 25 years: one might expect that to be time enough for a representative proportion of women to progress or be promoted to more senior academic positions. A similar criticism can be levied against the ethnic diversity of dental school faculty which is not representative of the culturally diverse population within the UK. Consequently it is important to examine other factors associated with gender and ethnic differences, and perhaps, choices, not least because dental schools (among others) must demonstrate equality and diversity among their staff and students if they hope to benefit from a variety of research funding schemes. For example, funding from the National Institute for Health Research (NIHR) is now awarded to STEM schools on condition that they are in receipt of an Athena SWAN award.[20]

The demographic characteristics of dental students in the United Kingdom

In the same way that the proportion of registered female dentists is increasing over time, the same is true of applications to study dentistry. In 2011/12 the ratio of male to female

dental students in the UK was 50:50[13] but by 2013 61.3% of students were female [14 15]. The ethnic characteristics of the UK dental workforce are also interesting with an increase in BME students from 37% in the early-mid 1990s[12, 21] to 44% in 2012-2013.[22] Lightbody et al [23] interpreted this shift in ethnic diversity as recognition that dentistry is a 'respectable profession' with parental approval for BME groups. Some families are reported to be keen to persuade their children towards 'a prestigious career'[4] and parental pressure is reported to be a major factor in dental applications.[24] Similarly, research has shown that financial security and a healthy work-life balance are important to both genders in their choice of dentistry as a career but female dental students are less likely than males to anticipate working full time.[25, 26]

In order to determine the validity of the "leaky pipeline" theory, it is important to start at the beginning and examine factors that prompted students to study dentistry at all. While this is a recognised area of study, much of the existing work has been undertaken with students from individual dental schools.[2, 7, 8, 25, 27] While these studies highlight the motivations of specific school cohorts, data from single sites raise a question about the generalisability of findings, especially given differences in ethnic mix across different schools [28] To this end, we devised a survey to investigate the motivations of dental students from schools all around the UK who were completing their first or fourth year of study. If the "pipeline is leaking", we would hypothesise that female students and those from BME groups would be motivated by opportunities for an academic career. If such a trend isn't indicated, then it might be that there are no "leaks". Two hundred and forty three students from 11/18 schools in England, Scotland and Wales took part: 79 males (32.5%) and 164 (67.5%) females. Data from The Health and Education Strategy Exchange indicated that 4751 students were studying in dental schools in 2013: we estimate that of those, around 1900 (40%) would have been in years one and four meaning that our response rate was around 13%.[29]

What reasons do students give for studying dentistry?

Students were asked: "How important were the following when you were making your decision to study dentistry?" Each motivator (professional status, financial security, patient care, personal skills, clinical career opportunities, academic career opportunities, scientific interest, flexible working hours, practical nature of the job and family pressure) was selected based on the findings of previous validated studies in this field.[4, 7]

The most important motivator for our whole sample was personal choice followed by opportunities to develop personal skills and patient care. Fewer than 50% of students reported the pursuit of an academic career to be important in their career choice.

[Figure 1 about here]

However, when the data are broken down according to gender and ethnic group there is evidence that different motivators may be important (see Figure 2 and Table 3 respectively).

All motivators apart from clinical career were more important to women than men with the biggest differences being observed for flexible working hours and academic career.

[Figure 2 about here]

The importance of motivators according to ethnicity are shown in Table 1. As for differences according to gender, fewer White British students than Asian British or other students ranked academic career opportunities, flexible working hours and family pressures as important; on the other hand, professional status is ranked as important by more British Asian students than anyone else. [Table 1 about here]

Motivators differ according to gender and ethnic group

While personal choice, the development of personal skills, patient care, financial status and also the practical nature of dental work seem to be important to most respondents, the relative importance of each varies according to individual characteristics. Flexible working hours are a motivating factor for most female students – however, part-time work may be perceived to be unconducive to career development and progression and this has the potential to impact on the staffing levels in the dental workforce in future. [30]

Family pressures are also relatively important for female students and those who categorise themselves as being British Asian. Interestingly, opportunities to undertake an academic career within dentistry are important to fewer than half of the overall sample but again, are relatively more important to female students and those from BME groups.[31]

Although our sample of students is small, we have collected data from dental schools around the UK. Our findings are important to reflect upon given the focus on equal opportunities within STEMM departments in higher education institutions and the "leaky pipeline" in academic dentistry. With the majority of the current population of dental students being female and our finding that flexible working hours are important for female students, opportunities to provide non-traditional but effective working contexts must be considered e.g. comprehensive return to work and job share packages. In the same way, for those who are interested in undertaking an academic career, appropriate dedicated time to build research careers is likely to be important in order to avoid conflicts between research and service provision. This is especially important given that more female than male students are motivated by the possibility of an academic career. Similarly students from BME groups report that they are more motivated by the opportunity to pursue an academic career than those who are white British. If Dental Schools take note of these preferences and continue to work to incorporate structures that facilitate equal opportunities it may be that the leaky pipeline can be mended and a more equal and diverse population of academic dentists can begin to emerge. This is likely to broaden the potential of academia generally and research in particular and also to provide a diverse range of role models for all students.

All authors confirm that they have no conflicts of interest.

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Figure 1: Level of student preference for motivations to study

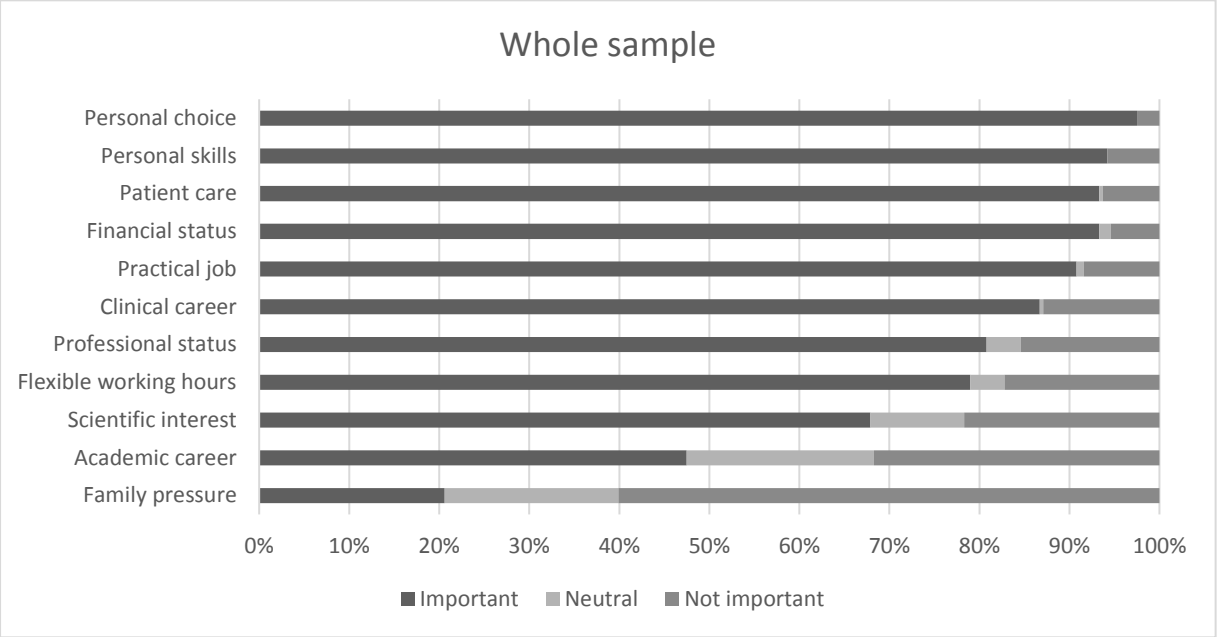

Figure 2: Importance of different motivations by gender

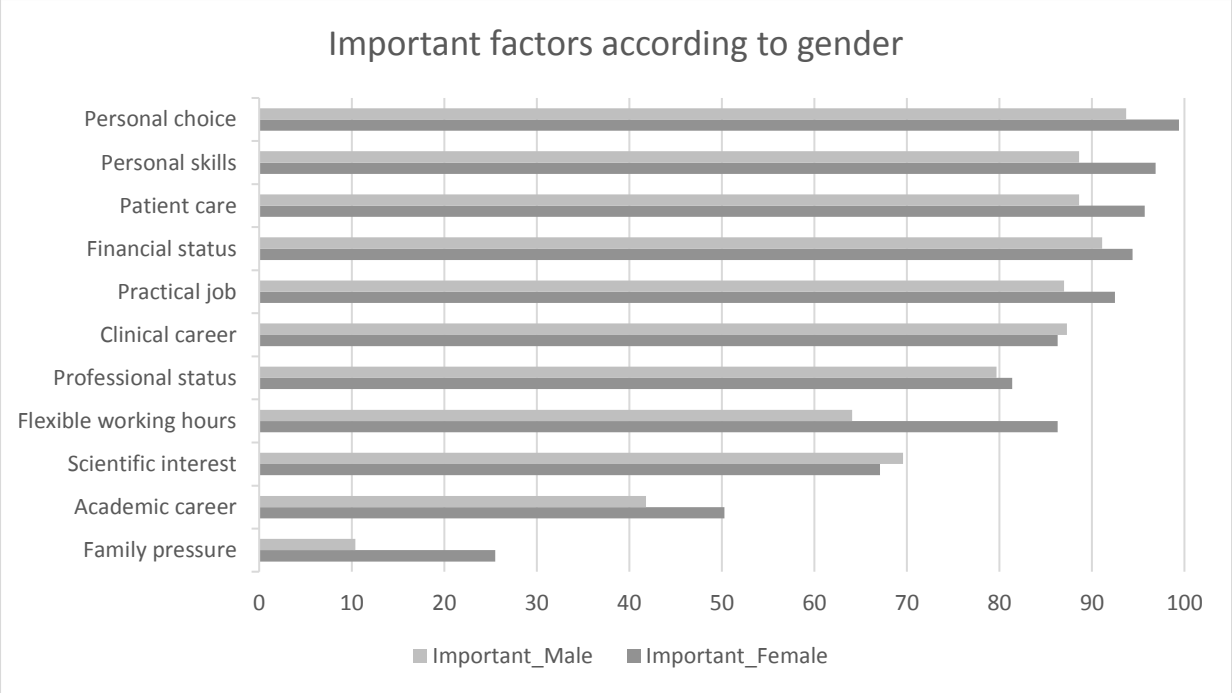

Table 1: Proportion of students ranking different motivators as important according to ethnic group

Importance as motivating factor	Ethnic Group		
	White British	British Asian	Other
Personal choice	97.6	95.2	95.2
Personal skills	94.5	90.3	98
Patient care	91.3	93.5	98
Financial status	92.1	95.2	94.1
Practical job	92.1	88.5	90
Clinical career	84.3	88.7	90.2
Professional status	76.4	88.7	82.4
Flexible working hours	74.8	85.2	82
Scientific interest	68.5	69.4	64.7
Academic career	42.5	53.2	52.9
Family pressure	15.1	30.6	22